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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,779	03/14/2005	Ercan Ferit Gigi	NI 020858	1798

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BRIARCLIFF MANOR, NY 10510

EXAMINER

LENNOX, NATALIE

ART UNIT	PAPER NUMBER
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2626

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,779	Applicant(s) GIGI, ERCAN FERIT	
	Examiner NATALIE LENNOX	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 2,4,13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/12/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action has been issued in response to the amendments filed on March 19, 2008. Claims 1-14 are pending, with claims 1, 3, 6, 11, and 12 amended, and claims 2, 4, and 13-14 cancelled.

Response to Arguments

1. Applicant's arguments filed March 19, 2008 have been fully considered but they are not persuasive.

Regarding applicant's arguments as provided in page 7, last paragraph of the Remarks, "The present invention fails to require this type of LPC analysis – as to what is recited in claim 1 is a distinction being made between steady and dynamic intervals," examiner respectfully agrees with the applicant that this analysis is not required, however, as claim 1 reads the "method of synthesizing of a speech signal, comprises:" (emphasis added), which means that the list of steps claimed must form part of the method, but the method does not exclude additional, unrecited elements or method steps (see MPEP § 2111.03).

Regarding applicant's arguments with respect to claim 5, as provided in page 10, last paragraph of the Remarks, "applicant's respectfully disagree with the assertion in the Office Action that Gersho's paragraph [0090] teaches the features of a third, fourth, fifth, and sixth code as recited in the claim. Applicant fails to see how six codes are even identified, much less how they correlate with the specific code definitions contained in claim 5." Examiner respectfully disagrees with the applicant given that

Gersho's paragraph [0090], more specifically lines 2-4, provides the use of harmonic coding for steady state voiced speech (fourth code) and "noise-like" coding for stationary unvoiced speech (third code). Additionally as claimed, "a third code, a fourth code, a fifth code or a six code is used as the second identifier" (emphasis added), and since the claim refers to these codes in the alternative, then the rejection based on Gersho's paragraph [0090] still stands.

2. Applicant's arguments with respect to claims 1, 6, 11, and 12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 3, 5, 7, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho et al. (US 2001/0023396), hereinafter Gersho, in view of Lowry (US Patent 5,787,398).

As per claims 12, 1, and 11, Gersho teaches a computer system, method, and computer program product of synthesizing of a speech signal, comprising:

- assigning a first identifier to steady intervals of an original speech signal and assigning a second identifier to dynamic intervals of the original speech signal (Paragraph [0089], lines 5-9, steady state voiced (steady interval) and transitory (dynamic interval), also paragraphs [0090] and paragraph [0091], lines 9-15), and

- processing the pitch bells having the first identifier assigned thereto for modifying a duration of the speech signal (Paragraph [0185], lines 1-13).

However, Gersho does not specifically mention

- windowing the original speech signal to provide a number of pitch bells, and
- performing an overlap and add operation on the processed pitch bells.

Conversely, Lowry does teach

- windowing the original speech signal to provide a number of pitch bells (Col. 2, lines 19-24), and
- performing an overlap and add operation on the processed pitch bells (Col. 3, lines 25-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the features of windowing the original speech signal to provide a number of pitch bells, and performing an overlap and add operation on the processed pitch bells as taught by Lowry for Gersho's computer system, method, and computer program product because Lowry provides for synthesizing speech by varying the pitch of the speech synthesized (Col. 2, lines 14-16). Lowry's windowing and overlap and add functions are performed on voiced speech segments (Col. 2, lines 20-21 and Col. 3, line 26) which are the same segments being synthesized by Gersho's harmonic model (Paragraph [0185], lines 2-3, and paragraph [0089], lines 5-7).

As per claim 3, Gersho, as modified by Lowry, teaches the method of claim 1, further comprising a first code or a second code being used as the first identifier, the

first code being indicative of an unvoiced interval and the second code being indicative of a voiced interval ("steady state voiced" from Gersho's paragraph [0089]).

As per claim 5, Gersho, as modified by Lowry, teaches the method of claim 1, whereby a third code, a fourth code, a fifth code or a sixth code is used as the second identifier, the third code being indicative of an unvoiced interval being essential for the intelligibility of the speech signal, the fourth code being indicative of a voiced interval being essential for the intelligibility of the speech signal, and the fifth code being indicative of an unvoiced interval not being essential for the intelligibility of the speech signal and the sixth code being indicative of a voiced interval not being essential for the intelligibility of the speech signal (Paragraph [0090], stationary unvoiced speech segment represents the unvoiced interval being essential for the intelligibility of the speech signal.).

As per claim 7, Gersho, as modified by Lowry, teaches the method of claim 1. Gersho does not, but Lowry does teach whereby a raised cosine is used for windowing of the speech signal (Col. 5, lines 61-63).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a raised cosine is used for windowing of the speech signal as taught by Lowry for Gersho's method because Lowry provides the use of a raised cosine in order to ensure a smooth evolution of filter coefficients (Col. 5, lines 61-63).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho (US 2001/0023396) in view of Lowry (US Patent 5,787,398) as applied to claim 5 above, and further in view of Kleijn (US Patent 5,884,253).

As per claim 6, Gersho, as modified above, teach the method of claim 5, but does not specifically mention whereby pitch bells being assigned to the sixth code are deleted optionally.

However, Kleijn teach pitch bells being assigned to the sixth code are deleted optionally (Col. 20, lines 3-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of pitch bells being assigned to the sixth code are deleted optionally as taught by Kleijn for Gersho's method, as modified above, because Kleijn eliminates complete pitch cycles during the entering of voiced speech segments into a buffer to minimize time mismatch between original and reconstructed signal in order to avoid discontinuities in the speech waveform at the voiced-unvoiced transition (Col. 19, line 60 to Col. 20, line 7).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho (US 2001/0023396) in view of Lowry (US Patent 5,787,398) as applied to claim 1 above, and further in view of Nishiguchi et al. (US Patent 5,832,437).

As per claim 8, Gersho, as modified above, teaches the method of claim 1, but does not specifically mention a sine window being used for windowing of steady, unvoiced intervals of the speech signal.

However, Nishiguchi et al. teach a sine window being used for windowing of steady, unvoiced intervals of the speech signal (Col. 3, lines 36-53).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a sine window being used for windowing of steady, unvoiced intervals of the speech signal as taught by Nishiguchi et al. for Gersho's method, as modified above, because Nishiguchi provides speech analysis/synthesis methods in which sine wave synthesis is employed for a voiced speech portion or in which the unvoiced speech portion is synthesized based upon noise signals. Also, his invention finds application in pitch conversion, speed conversion, regular speech synthesis, or noise suppression (Nishiguchi's Col. 11, line 62 to Col. 12, line 6).

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho (US 2001/0023396) in view of Lowry (US Patent 5,787,398) as applied to claim 1 above, and further in view of Singhal (US Patent 6,963,833).

As per claim 9, Gersho, as modified above, teaches the method of claim 1, but does not specifically mention further comprising randomizing the pitch bells of steady, unvoiced periods before performing the overlap and add operation.

However, Singhal teaches randomizing the pitch bells of steady, unvoiced periods before performing the overlap and add operation (Col. 14, lines 25-37).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of randomizing the pitch bells of steady, unvoiced periods before performing the overlap and add operation as taught by Singhal for Gersho's method, as modified above, because an unvoiced component of speech is generated from harmonics that are declared unvoiced, whereby spectral magnitudes of these harmonics are each allotted a random phase generated by a random phase generator to form a modified noise spectrum. The inverse transform of the modified spectrum corresponds to an unvoiced part of the speech (Singhal's Col. 6, lines 46-51).

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gersho (US 2001/0023396) in view of Lowry (US Patent 5,787,398) as applied to claim 1 above, and further in view of Applicant's Admitted Prior Art (hereinafter, AAPA).

As per claim 10, Gersho, as modified above, teaches the method of claim 1, but does not specifically mention whereby the windowing is performed by means of a window positioned synchronously with a fundamental frequency of the speech signal.

However, AAPA teaches the windowing is performed by means of a window positioned synchronously with a fundamental frequency of the speech signal (AAPA's page 6 of applicant's disclosure, lines 1-3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of the windowing is performed by means

of a window positioned synchronously with a fundamental frequency of the speech signal as taught by AAPA for Gersho's method, as modified above, because this windowing method is known from prior art and used in PSOLA type methods (AAPA's page 6 of applicant's disclosure, line 3).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATALIE LENNOX whose telephone number is (571)270-1649. The examiner can normally be reached on Monday to Friday 9:30 am - 7 pm (EST).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NL 07/02/2008
/Richemond Dorvil/
Supervisory Patent Examiner, Art Unit 2626